

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2019 / 2020

PBC0016–BASIC COMPUTING AND PROGRAMMING
(Foundation in Engineering)

21 OCTOBER 2019
2.30 p.m. - 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of **FOUR** printed pages with **FOUR** questions.
2. Answer **ALL** questions.
3. Write your answers in the Answer Booklet.

QUESTION 1

- (a) Briefly describe the technologies used in the following computer generations:
(i) Third Computer Generation
(ii) Fourth Computer Generation
[3 + 3 marks]
- (b) State **THREE (3)** areas of computer applications.
[3 marks]
- (c) Briefly explain the following technologies in today's personal computers:
'pipelining processing', 'multicore processors' and 'parallel processing'.
[2 + 2 + 2 marks]
- (d) Define the term 'clock speed' and describe how clock speed affects the performance of a processor.
[2 + 2 marks]
- (e) Distinguish between storage and memory. Describe how these two items interact with each other.
[4 + 2 marks]

QUESTION 2

- (a) What is an optical reader? Describe **TWO (2)** technologies used by optical readers.
[2 + 4 marks]
- (b) A hard disk is a storage device that uses magnetic storage to store and retrieve digital information:
(i) What is the mechanism, that reads and writes items in the drive while barely touching the disk's recording surface?
(ii) What happens if dust touches the surface of a platter on a hard disk?
(iii) Suggest a way to prevent the loss of items stored on a hard disk.
[2 + 2 + 2 marks]
- (c) Distinguish between 'Desktop Operating System' and 'Server Operating System'.
[4 marks]
- (d) Briefly describe **TWO (2)** advantages of the web-based applications, compared with the standalone offline applications (e.g.: Microsoft Word).
[4 marks]
- (e) Calculate the amount of storage needed (in GB) to store a 2.5-hour video if 15 seconds of video is approximately 5MB. How to reduce the size of a video file?
[3 + 2 marks]

Continued

Question 3

- (a) Briefly describe the following communication devices: Modem, Router and Wireless Access Point.

[2 + 2 + 2 marks]



Figure Q3: Wireless Technologies

- (b) Figure Q3 shows two closely related wireless communication technologies: Near Field Communication (NFC) and Radio Frequency Identification (RFID).

- (i) Explain the differences between NFC and RFID technologies.
- (ii) Based on your answer in part (i), suggest a suitable application for each of them.

[4 + 2 marks]

- (c) What is a GPS technology? List **THREE** (3) applications of GPS.

[5 marks]

- (d) Define the term 'multimedia authoring software' and state possible applications of this software.

[4 marks]

- (e) Distinguish between streaming and non-streaming audio. Name **ONE** (1) file format for each of them.

[4 marks]

QUESTION 4

- (a) Construct a logical expression to represent each of the following conditions:

- (i) **weight** is in the range 50 kg to 80 kg (inclusive).
- (ii) **bmi** is either **normal** or **obesity**.
- (iii) **score** is even but not 100.

[6 marks]

Continued

- (b) Draw a *flowchart* for an algorithm that prompts the user for a 'Programme Outcome' (PO) attainment and displays the corresponding PO criteria as tabulated in Table Q4 below (*Hint*: Use nested if-else structure). Note: **DO NOT** write the program.

Table Q4: Programme Outcome Criteria

PO Attainment	Criteria
Above 70%	Excellent
50% - 70%	Satisfactory
Below 50%	Needs improvement

[6 marks]

- (c) Write a complete C program that is able to determine the PO criteria. The program prompts the user to enter their PO attainments for three subjects and then calculate the average PO attainment. Based on your answer in part (b), your program will then display the PO criteria on the screen. Sample output is shown in Figure Q4.

[8 marks]

```
Please enter your PO attainment for three subjects: 67 55 78
Your average PO attainment = 66.67
PO criteria = 'Satisfactory'
```

Figure Q4: Sample Output (**Bold and underlined** denotes user's input)

- (d) Determine the output of the following program.

[5 marks]

```
#include <stdio.h>

int main()
{
    int num1 = 3, num2 = 8, sum = 0, i;

    for (i=num1; i<=num2; i++){
        printf("%d \t", i);
        sum = sum + i;
    }

    printf("\n Sum of all integers: %d\n", sum);

    return 0;
}
```

End of Paper